

# ENGINEERS NORTHWEST, INC. P.S.

6869 WOODLAWN AVENUE N.E., SUITE #205  
SEATTLE, WASHINGTON 98115

PHONE - (206) 525-7560 / FAX - (206) 522-6698

## LETTER OF TRANSMITTAL

TO: MG2  
1101 Second Avenue, Suite 100  
Seattle, WA 98101

DATE: 11/29/2019	JOB NO: 16038000
ATTENTION: Shawn Ronning	
RE: Costco Campus BLDG 4	

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via \_\_\_\_\_ the following items:

- ☒ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications  
☐ Copy of letter ☐ Change order ☐ \_\_\_\_\_

COPIES	DATE	NO.	DESCRIPTION
E	12/3/2019		Shotcrete Mix Design - Basement Walls

THESE ARE TRANSMITTED as checked below:

- ☐ For approval ☐ Approved as submitted ☐ Resubmit \_\_\_\_\_ copies for approval  
☒ For your use ☒ Approved as noted ☐ Submit \_\_\_\_\_ copies for distribution  
☐ As requested ☐ Returned for corrections ☐ Return \_\_\_\_\_ corrected prints  
☐ For review and comment ☐ \_\_\_\_\_  
☐ FOR BIDS DUE \_\_\_\_\_  
☐ PRINTS RETURNED AFTER LOAN TO US

**\*\* If enclosures are not as noted, kindly notify us at once. \*\***

REMARKS:

COPY TO: File

SIGNED: \_\_\_\_\_

URGENT ☐

Submittal CSI No.: 03300

## SUBMITTAL TRANSMITTAL

Submittal No. JDC 03 - DIVISION 3 - CONCRETE - Submittal Material

**Project:** US Home Office Corp Campus, WA  
BLDG 4: 730 Lake Drive BLDG 5: 755 Lake Drive

**Date:** 11.26.2019

**MG2 #:** 15-0035-02

**CW#:** CW17-1047-02

**Owner:** Costco Wholesale

**Contractor:** Jackson Dean Construction

☐ **Shop Drawings**

☐ **Project Data**

☐ **Samples**

**Submittal Description:** Basement Walls - Shotcrete

**Number of Sheets:** 5 sets (see fwd log)

☐ **Catalogs / Books**

**Date:** 11.26.2019

**Supplier / Subcontractor / Manufacturer:**

**Comments / Questions:**

-

### Submittal Action

- ☐ Not Issued
- ☐ Under Review
- ☐ Approved
- ☐ Conforms to Design Concept
- ☐ Conforms to Design Concept with Revisions as Shown
- ☐ Non-Conforming, Revise & Re-Submit
- ☐ No Action Required - Submittal not required; retained for project file

**Reviewer Comments:**

**Attachments:**

**Reviewed By:**

**Date:**

Urgent ☐

Submittal Number:

3

Revision: 0

## Submittal Transmittal

Project: Costco Issaquah Building 4  
730 Lake Drive  
Issaquah, WA 98027  
Owner: Costco

Date: November 26, 2019  
Arch Job #: 15-0035-02B  
Contractor: Jackson Dean Construction

☐ Shop Drawings ☐ Product Data ☐ Samples ☒ Other

Submittal Description Basement Walls - Shorcrete Mix Design

Number of Sheets 35 ☐ Catalogs/Books Date: November 26, 2019

Supplier / Subcontractor / Manufacturer Stoneway / Albrecht Birkenbuel

Comments / Questions:

Distributed To	Sent To On	Date Received	No. of Copies
Architect	November 26, 2019		
Consultant			
Architect			
Contractor /			
Subcontractor			
Owner			
Other			

## Submittal Action

- ☐ Confirms to Design Concept  
☐ Confirms to Design Concept with Revisions as Shown  
☐ Non-Conforming, Revise & Re-Submit  
☐ No Action Required - submittal not required; retained for project file

## Reviewer Comments:

SUBMITTAL NO. 03

JOB NAME: Costco Build 4

ARCH JOB #:

JOB NUMBER:

REVIEWED

REVISED AS NOTED

RE-SUBMIT

REJECTED

Attachments:

Reviewed By:

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH INFORMATION IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. THIS SUBCONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOBSITE; FABRICATION PROCESS AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF THEIR WORK WITH THAT OF ALL OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF THEIR WORK.

**JAC**  
CONSTRUCTION

JACKSON DEAN CONSTRUCTION  
3414 S. 116<sup>TH</sup> ST  
SEATTLE, WA 98168  
(206) 832.2900

Date: 11/26/19

By: 

CSI No. 033713

- Description Basement Walls - Shorcrete Mix Design

Description	Mix Number	Strength	Comments
Shotcrete Mix	575371ST	6,000 psi	1" to 4" slump

Notes:

1. There are three parts to the shotcrete submittal: 1) nozzleman letter, 2) shotcrete mix and 3) curing compound.
2. ABI/Air Placed plans on shooting the below grade perimeter walls. Pilasters will be blocked out and poured in the cast in place method.
3. There are three copies of the shotcrete mix. One from the Hauser plant (Renton), one from Black River and the final one from the Seattle plant.

## **SHOTCRETE**

SPECIAL INSPECTION IS REQUIRED. WORK IN ACCORDANCE WITH ACI 506R AND ACI 506.5R. SAND BLAST SURFACES TO RECEIVE SHOTCRETE TO REMOVE PAINT, OIL, GREASE AND OTHER CONTAMINANTS AND TO PROVIDE A ROUGHENED SURFACE FOR PROPER BONDING OF THE SHOTCRETE. SHOTCRETE CONTRACTOR SHALL SUBMIT EXPERIENCE RECORD AND LIST OF RECENT PROJECTS. A TEST PANEL WILL BE REQUIRED TO VERIFY OPERATOR QUALIFICATIONS AND TO VERIFY ACCEPTABILITY OF FINAL FINISH. CORES WILL BE CUT FROM PANEL FOR TESTING AND TO VERIFY ACCEPTABILITY OF PLACEMENT AROUND REINFORCING BARS. THERE WILL BE A SHOTCRETE PRECONSTRUCTION MEETING.

### **Albrecht Birkenbuel, Inc.** Contractor Review

- ☒ Reviewed  
☐ Reviewed with comments  
☐ Reviewed/Resubmit

Reviewed for general conformance with the contract requirements. Contractors review does not relieve subcontractor and/or vendor of his responsibility for dimensions, quantities, accuracy, or completeness of this submittal or from any responsibility required by the terms and conditions of this contract/purchase order with Albrecht Birkenbuel, Inc.

11/22/19  
Date

JC  
Reviewed by

FOLLOW MG2 AND  
COSTCO SPECS  
FOR SHOTCRETE



Date: November 18, 2019

To: ABI

Project: COSTCO- ISSAQUAH

Re: Nozzleman Qualification Letter -All projects for your information

Listed below are the nozzle man and blow-pipe men we intend to use on the above named project. If there are any questions or concerns about their qualifications, please contact Aaron McCaffery or Rick McCaffery at Air Placed Concrete Specialists, Inc. or Jerry Abson with the City of Seattle, WA (206) 684-8475. These nozzlemen and blow pipe men meet or exceed the ACI qualification requirements.

<u>NAME</u>		<u>POSITION</u>	<u>YEARS OF EXPERIENCE</u>
Kevin Joyner	ACI 11/17	Nozzle man	19
Korey Berge	ACI 11/17	Nozzle man	18
Billy Boughton	ACI 11/17	Nozzle man	10
Kyle Nielsen	ACI 11/17	Nozzle man	3
Mike Mantei		Nozzle man	4
Luis Gonzalez		Nozzle man	4
Humberto Cervantes		Nozzle man	7
Glenn McKinney	ACI 11/17	Nozzle man	22
Randal Clark		(TRAINEE) Nozzle man	1
Drew McCaffery		(TRAINEE) Nozzle man	1
Christopher Wheeler		(TRAINEE) Nozzle man	1
Kyle Nielson		Blow-pipe man	3
Jesse Volk		Blow-pipe man	7
Billy Boughton		Blow-pipe man	7
Doug Smith		Blow-pipe man	32
Wes Pilon		Blow-pipe man	7
Dane Miller		Blow-pipe man	4
Drew McCaffery		Blow-pipe man	8
Wes Wahl		Blow-pipe man	3

## IMPORTANT CONTACTS:

Kevin Joyner	425-905-9092
Korey Berge	425-508-3137

# Letter Of Transmittal

04/12/2019

2:08:27PM



**Stoneway Concrete**

*Where Quality Counts*

9210 8th AVENUE S

SEATTLE, WA 98108

OFFICE: (425) 226-1000

FAX: (425) 228-4924

## Report Description

Report: 163526

Submittal #12766 for Project: Various Projects 2019 - 6K

Detailed Data for Submittal #12766

Backup Data for Mix:575371ST of Submittal #12766 for Project: Various Projects 2019 - 6K

Backup Data for Mix:575371ST of Submittal #12766 for Project: Various Projects 2019 - 6K

Backup Data for Mix:575371ST of Submittal #12766 for Project: Various Projects 2019 - 6K



Air Placed Concrete

**Stoneway Concrete**  
*Where Quality Counts*

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Project: Various Projects 2019 - 6K

Dear Sir/Madam:

In accordance with your request, we are submitting the following mix design(s) for the above project

Date issued: 4/12/2019

Mix Code Number	Plant	Use
575371ST	11 Seattle	6000 PSI Shotcrete
575371ST	12 Black River	6000 PSI Shotcrete
575371ST	14 Houser	6000 PSI Shotcrete

A structural concrete statistical analysis report, based on mix design performance in the field, is included for your review, along with mix design proportions. This report is in accordance with ACI 318-14 specifications. Stoneway concrete warrants (as its exclusive warranty) the compressive strength of test specimens tested for acceptance in accordance with ASTM will meet the design strength for each mix design. The historical mix design strength test data represents the results of compressive tests of concrete specimens, not the strength of concrete in place. Because Stoneway Concrete does not control the means and methods of placement, it does not accept responsibility for the workability, strength of in place concrete or for concrete test specimens not tested in accordance with ASTM. If requested, Stoneway Concrete is prepared to recommend modifications to this proposed mix design to take into consideration the contractor's means and methods, subject to appropriate price adjustments.

Stoneway Concrete requests copies of concrete compressive strength test results within three (3) working days of performance of said tests and written notice of deficient concrete compressive strength test results within 24 hours in accordance with our standard terms and conditions and in accordance with ASTM C 94-13a, Section 14.4.

Stoneway Concrete does not profess to be a licensed architect, civil engineer or structural engineer. Accordingly, any advice or specifications supplied by Stoneway Concrete shall be used at the sole risk of those requesting or receiving the same. Stoneway Concrete assumes no responsibility for the design or construction of any structure in which its products are used. Any review of plans, specifications building applications or production applications by Stoneway Concrete is not to be construed as approval thereof by Stoneway Concrete.

Sincerely,  
STONEWAY CONCRETE

Technical Services



**Stoneway Concrete**  
*Where Quality Counts*

Date Issued: 4/12/2019

Supplier: **Stoneway Concrete**

*Mix Code must be used when ordering concrete.*

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Customer: Air Placed Concrete

Project: Various Projects 2019 - 6K

Plant: 11 Seattle

Usage: 6000 PSI Shotcrete

Mix ID: **575371ST**

Material	Source	Description	ASTM	Spec. Gravity	oz.	cu.ft.	Weight(lb)
# 8	Cal Portland Pit # B-335	AASHTO #8 (3/8)	C33	2.69	0.00	5.25	882
Fine Aggregate	Cal Portland Pit # B-335	Concrete Sand	C33	2.66	0.00	11.07	1,839
Type I-II	Ash Grove	Cement	C150	3.15	0.00	3.59	705
Air Entrainer	W.R. Grace	Daravair 1000	C260	1.10	3.95	0.00	
Slag	LAFARGE	Lafarge GGBFS	C989	2.87	0.00	0.47	85
City	City	Water	C1602	1.00	0.00	5.05	315
Air						1.77	
TOTAL						27.20	3,826

Specified F'c :	6,000	PSI					
Specified Slump:	1.00 To 4.00	in.		Designed Unit Weight:	140.7	lbs./cu.ft.	
Specified Air:	3.50 To 6.50	%		Designed W/C + P Ratio:	0.40		
Designed Air:	6.5	%		Designed Volume:	27.20	cu.ft.	

**NOTES:**

Stoneway Concrete has no knowledge or authority regarding where this mix is to be placed, therefore it is the responsibility of the project architect/engineer, and or contractor to insure that the above designed mix parameters of compressive strength, water cement ratio, cement content, and air content, are appropriate for the anticipated environmental conditions (i.e. ACI-318 sections 4.1-4.3, and the local Building Codes).

Chemical admixtures are added in accordance with the manufacturer's recommendations. Stoneway Concrete reserves the right to adjust these dosages to meet the changes in jobsite demands.

Designed mix cementitious content, is stated as a minimum, and Stoneway Concrete reserves the right to increase cementitious content.

**COMMENTS:**

- \* Recycled water to be used at a maximum of 50%.
  - \* Test specimens for this mix are cores from job site test panels.
- Required F'c is 85% of design strength.

Technical Services

ENGINEERS NORTHWEST, INC. has reviewed this Concrete Mix Design for conformance with the Construction Documents only. This review does not alleviate the contractor from providing concrete which meets the specified 28-day strength.

**12-3-19**  
Date

**M.O.**  
By

Date: 4/12/2019



**Stoneway Concrete**  
Where Quality Counts

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Mix Name: 575371ST

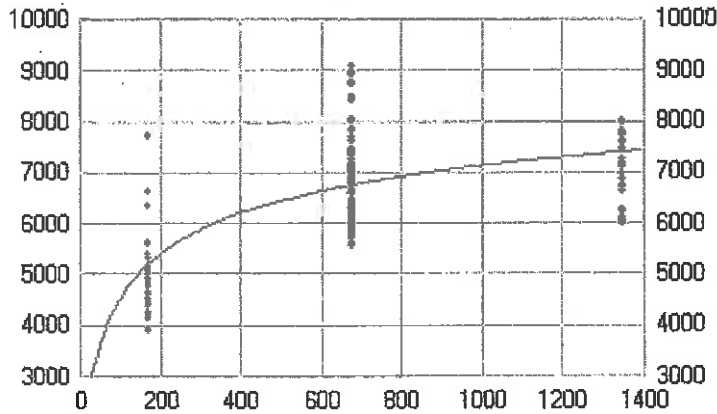
Units : US

PSI Strength and Strength Fit vs Maturity

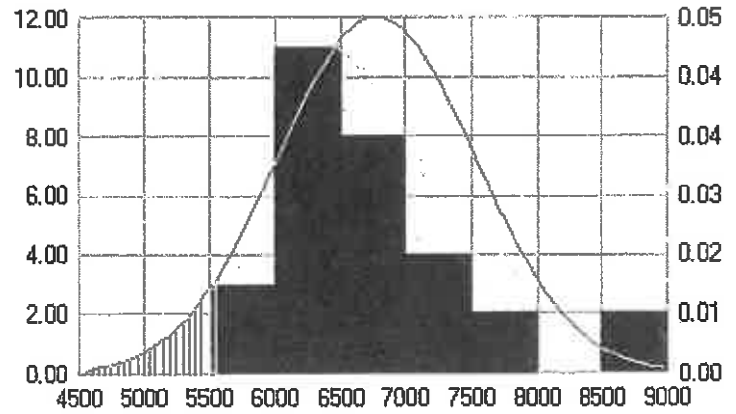
PSI # of Occ.

Histogram for 28 Day Strength

%/PSI



Maturity Hours



PSI

95% of tests lie above cross-hatched area

STRENGTH SUMMARY, Compression  
Strengths

Prisms

No. Of Tests	Avg Slump	Avg Air	Avg 3 Day	Avg 7 Day	Avg 28 Day	Avg 56 Day	Avg Acc Age	Accept Age
30	2.73	.00		4990	6770	6970	6770	28

Std ACI318  
Dev Req'd

750 7150

DETAILED STRENGTH, Compression

Prisms

Mix Number	Test Number	Date	Plant	Slump Spread Air	Strengths 3 Day 7 Day 28 Day 56 Day A
575371ST	09617228cb	11/9/2017	11 Seat	1.75	4770 5700
575371ST	m717119711	12/15/2017	11 Seat	2.50	4620 6110
575371ST	m717119711	1/2/2018	11 Seat	3.00	5120 6170
575371ST	m717119711	1/10/2018	11 Seat	2.50	5650 6990
575371ST	m717119711	1/11/2018	11 Seat	2.75	5420 6310
575371ST	822756	1/19/2018	11 Seat	2.50	5340 7300
575371ST	823108	1/20/2018	11 Seat	2.00	6370 7840
575371ST	833043	2/22/2018	11 Seat	2.50	4550 6430
575371ST	835175	2/27/2018	11 Seat	2.50	5150 7600
575371ST	835352	2/27/2018	11 Seat	3.00	5030 7450
575371ST	835275	2/28/2018	11 Seat	2.75	6650 8920
575371ST	836126	3/1/2018	11 Seat	3.00	4610 6890
575371ST	836184	3/1/2018	11 Seat	2.50	3930 6800
575371ST	836368	3/1/2018	11 Seat	2.50	4410 6360
575371ST	836692	3/2/2018	11 Seat	2.75	3950 5810
575371ST	836981	3/5/2018	11 Seat	2.75	4240 5880

Mix Number	Test Number	Date	Plant	DETAILED STRENGTH, Compression			Prisms			
				Slump	Spread	Air	Strengths			
							3 Day	7 Day	28 Day	56 D
575371ST	837674	3/6/2018	11 Seat	3.00			5130-	6860		
575371ST	837524	3/6/2018	11 Seat	2.75			4660	6550		
575371ST	837899	3/7/2018	11 Seat	3.00			3920	7150		
575371ST	843686	3/22/2018	11 Seat	2.75			5050	6930		
575371ST	847366	4/2/2018	11 Seat	2.50			4170	6330		
575371ST	452330	4/17/2018	11 Seat	2.50			4460	6160		
575371ST	907957	9/12/2018	11 Seat	3.25			7730	8560		
575371ST	906254	9/24/2018	11 Seat	2.75			4880	6150	6240	
575371ST	906413	9/24/2018	11 Seat	2.75			4510	6450	6130	
575371ST	910633	10/3/2018	11 Seat	3.00				6390		
575371ST	920129	10/24/2018	11 Seat	2.75			5630	6890	7590	
575371ST	919922	10/24/2018	11 Seat	3.00			4830	6420	7170	
575371ST	925293	11/7/2018	11 Seat	2.75			4940	7020	7500	
575371ST	936558	12/12/2018	11 Seat	3.75			5100	6810	7200	



**Stoneway Concrete**  
*Where Quality Counts*

Date Issued: 4/12/2019

Supplier: **Stoneway Concrete**

*Mix Code must be used when ordering concrete.*

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Customer: Air Placed Concrete

Project: Various Projects 2019 - 6K

Plant: 12 Black River

Usage: 6000 PSI Shotcrete

Mix ID: **575371ST**

Material	Source	Description	ASTM	Spec. Gravity	oz.	cu.ft.	Weight(lb)
# 8	Quality Aggregates	AASHTO #8 (3/8)	C33	2.69	0.00	5.20	874
Fine Aggregate	Quality Aggregates	Concrete Sand	C33	2.63	0.00	11.00	1,806
Cement	LAFARGE	Type II(15)	C595	3.15	0.00	3.59	705
Air Entrainment	W.R. Grace	Daravair 1000	C260	1.10	3.95	0.00	
Slag	LAFARGE	Lafarge GGBFS	C 989	2.87	0.00	0.47	85
City	City	Water	C94	1.00	0.00	5.05	315
Air						1.76	
						TOTAL	27.07
							3,785

Specified F'c :	6,000	PSI					
Specified Slump:	1.00 To 4.00	in.					
Specified Air:	3.50 To 6.50	%					
Designed Air:	6.5	%					

Designed Unit Weight:	139.8	lbs./cu.ft.
Designed W/C + P Ratio:	0.40	
Designed Volume:	27.07	cu.ft.

**NOTES:**

Stoneway Concrete has no knowledge or authority regarding where this mix is to be placed, therefore it is the responsibility of the project architect/engineer, and or contractor to insure that the above designed mix parameters of compressive strength, water cement ratio, cement content, and air content, are appropriate for the anticipated environmental conditions (ie. ACI-318 sections 4.1-4.3, and the local Building Codes).

Chemical admixtures are added in accordance with the manufacturer's recommendations. Stoneway Concrete reserves the right to adjust these dosages to meet the changes in jobsite demands.

Designed mix cementitious content, is stated as a minimum, and Stoneway Concrete reserves the right to increase cementitious content.

**COMMENTS:**

- \* Recycled water to be used at a maximum of 50%.
  - \* Test specimens for this mix are cores from job site test panels.
- Required F'c is 85% of design strength.

**Technical Services**

ENGINEERS NORTHWEST, INC. has reviewed this Concrete Mix Design for conformance with the Construction Documents only. This review does not alleviate the contractor from providing concrete which meets the specified 28-day strength.

**12-3-19**  
Date

**M.O.**  
By

Date: 4/12/2019



Stone Way Concrete  
Where Quality Counts

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Mix Name: 575371ST

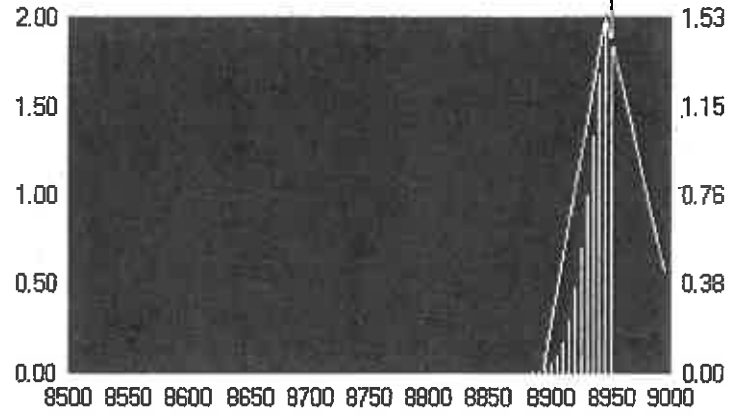
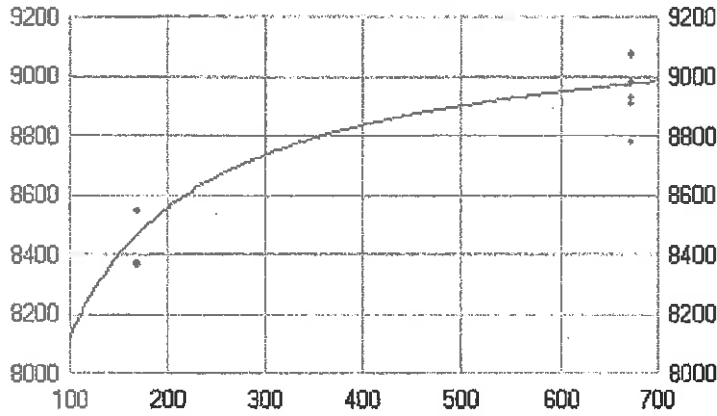
Units: US

PSI Strength and Strength Fit vs Maturity

PSI # of Occ.

Histogram for 28 Day Strength

%/PSI



Maturity Hours

PSI

95% of tests lie above cross-hatched area

STRENGTH SUMMARY, Compression  
Strengths

Prisms

No. Of Tests	Avg Slump	Avg Air	Avg 3 Day	Avg 7 Day	Avg 28 Day	Avg 56 Day	Avg Acc Age	Accept Age
2	2.00	.00		8460	8960		8960	28

Std ACI318  
Dev Req'd

7300

DETAILED STRENGTH, Compression

Prisms

Mix Number	Test Number	Date	Plant	Slump	Spread	Air	Strengths 3 Day 7 Day 28 Day 56 Day A
575371ST	0712176717	12/26/2018	12 Blac	2.00			8550 8970
575371ST	0712176717	12/26/2018	12 Blac	2.00			8370 8940



**Stoneway Concrete**  
*Where Quality Counts*

Date Issued: 4/12/2019

Supplier: **Stoneway Concrete**

Mix Code must be used when ordering concrete.

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Customer: Air Placed Concrete

Project: Various Projects 2019 - 6K

Plant: 14 Houser

Usage: 6000 PSI Shotcrete

Mix ID: **575371ST**

Material	Source	Description	ASTM	Spec. Gravity	oz.	cu.ft.	Weight(lb)
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Fine Aggregate	Quality Aggregates	Concrete Sand	C33	2.63	0.00	11.00	1,806
Type I-II	Ash Grove	Cement	C150	3.15	0.00	3.59	705
Air Entrainment	W.R. Grace	Daravair 1000	C260	1.10	3.95	0.00	
Slag	LAFARGE	Lafarge GGBFS	C989	2.87	0.00	0.47	85
City	City	Water	C1602	1.00	0.00	5.05	315
Air						1.76	
TOTAL						27.07	3,785

Specified F'c :	6,000	PSI					
Specified Slump:	1.00 To 4.00	in.		Designed Unit Weight:	139.8	lbs./cu.ft.	
Specified Air:	3.50 To 6.50	%		Designed W/C + P Ratio:	0.40		
Designed Air:	6.5	%		Designed Volume:	27.07	cu.ft.	

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Technical Services

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**12-3-19**  
Date

**M.O.**  
By

Date: 4/12/2019



Stone Way Concrete  
Where Quality Counts

9216 8th AVENUE S  
SEATTLE, WA 98108  
OFFICE: (425) 226-1000  
FAX: (425) 228-4924

Mix Name: 575371ST

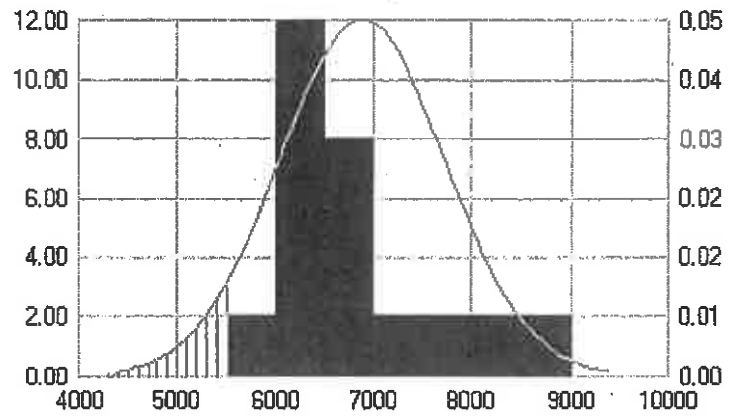
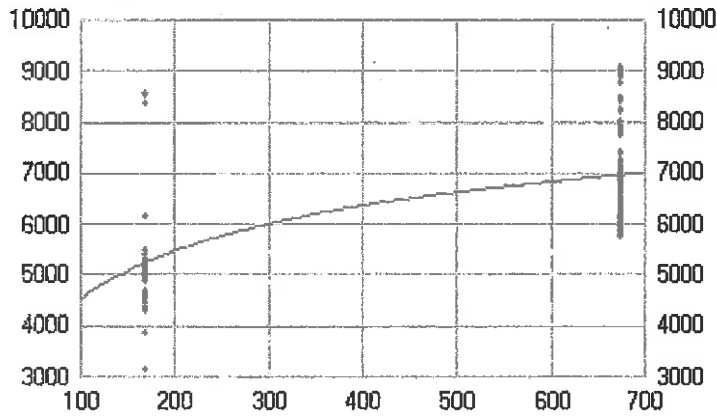
Units: US

PSI Strength and Strength Fit vs Maturity

PSI # of Occ.

Histogram for 28 Day Strength

%/PSI



Maturity Hours

PSI

95% of tests lie above cross-hatched area

STRENGTH SUMMARY, Compression  
Strengths

Prisms

No. Of Tests	Avg Slump	Avg Air	Avg 3 Day	Avg 7 Day	Avg 28 Day	Avg 56 Day	Avg Acc Age	Accept Age
30	2.48	.00		5180	6880		6880	28

Std ACI318

Dev Req'd

850 7370

DETAILED STRENGTH, Compression

Prisms

Mix Number	Test Number	Date	Plant	Slump	Spread	Air	Strengths 3 Day	7 Day	28 Day	56 Day	A
575371ST	829713	2/12/2018	14 Hous	2.50			5240	6290			
575371ST	830065	2/13/2018	14 Hous	2.50			4940	7230			
575371ST	832646	2/21/2018	14 Hous	2.50			3170	5990			
575371ST	853533	2/28/2018	14 Hous	2.50			6170	7790			
575371ST	836475	3/2/2018	14 Hous	2.50			4630	6090			
575371ST	836517	3/2/2018	14 Hous	2.50			4360	6440			
575371ST	837414	3/6/2018	14 Hous	3.00			5020	7000			
575371ST	837589	3/6/2018	14 Hous	2.50			4980	6830			
575371ST	839819	3/12/2018	14 Hous	2.50			4910	6770			
575371ST	840517	3/14/2018	14 Hous	2.50			4990	6450			
575371ST	841201	3/15/2018	14 Hous	2.50			3870	5980			
575371ST	841513	3/16/2018	14 Hous	2.50			5030	6470			
575371ST	842059	3/19/2018	14 Hous	2.50			5320	6640			
575371ST	842576	3/20/2018	14 Hous	2.50			4570	6390			
575371ST	844174	3/23/2018	14 Hous	2.50			5110	6250			
575371ST	844338	3/24/2018	14 Hous	2.50			5410	6370			

Mix Number	Test Number	Date	Plant	DETAILED STRENGTH, Compression		Prisms		
				Slump	Spread Air	Strengths	3 Day	7 Day 28 Day 56 D
575371ST	850583	4/11/2018	14 Hous	2.50			5260	8210
575371ST	851429	4/13/2018	14 Hous	2.50			5500	8480
575371ST	853398	4/19/2018	14 Hous	2.50			5310	6310
575371ST	853904	4/20/2018	14 Hous	2.50			4680	6460
575371ST	854869	4/23/2018	14 Hous	2.50			5290	6740
575371ST	856908	4/27/2018	14 Hous	2.50			4460	6710
575371ST	882272	7/13/2018	14 Hous	2.50			5320	6240
575371ST	889928	8/3/2018	14 Hous	2.50			4910	6060
575371ST	902378	9/13/2018	14 Hous	2.75			5240	6890
575371ST	912678	10/8/2018	14 Hous	2.50			5200	7070
575371ST	926290	11/9/2018	14 Hous	2.50			4330	6550
575371ST	932931	11/30/2018	14 Hous	2.00				7860
575371ST	0712176717	12/26/2018	14 Hous	2.00			8370	8940
575371ST	0712176717	12/26/2018	14 Hous	2.00			8550	8970

# Introducing MOBILEjobsite

## Order Information in the Palm of Your Hand

We are pleased to present you with our newest mobile solution for monitoring and tracking your ready mix orders – **MOBILEjobsite!**

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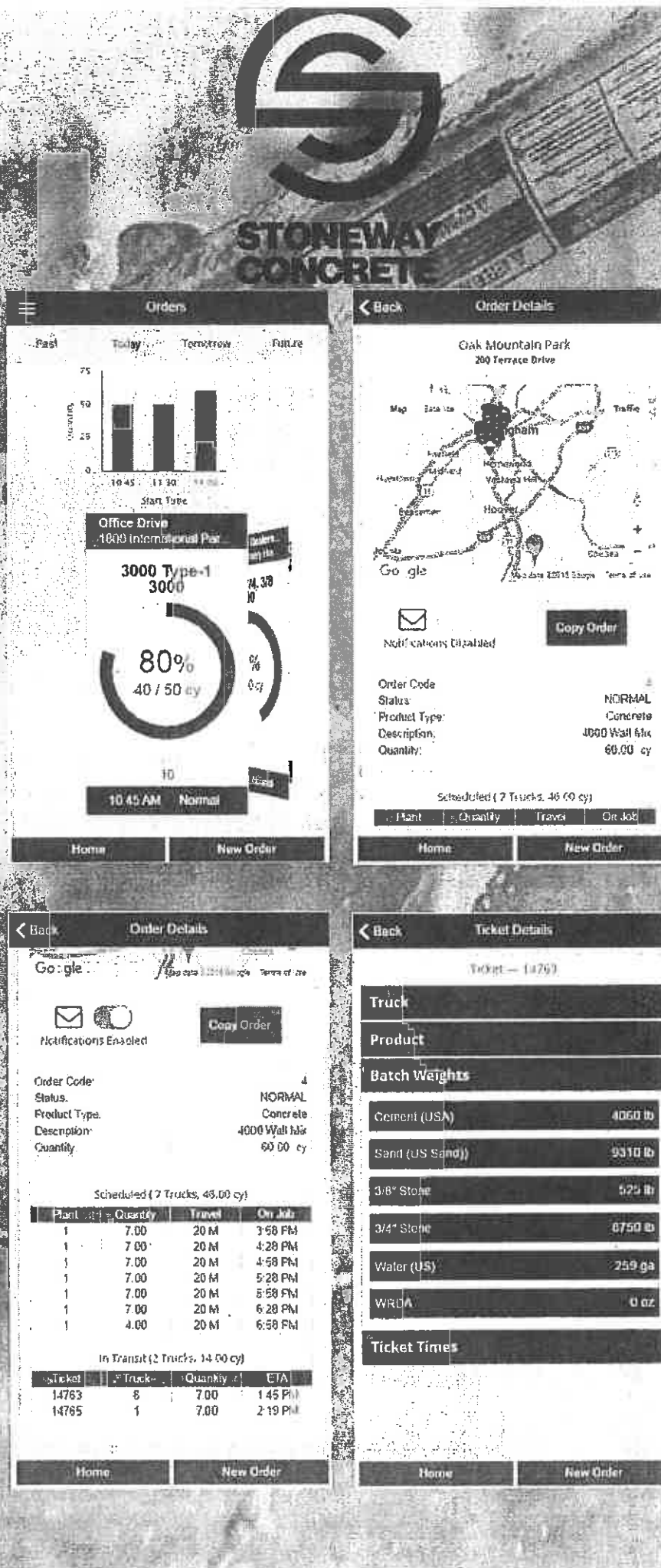
## Real Time Access to the Information You Need

A simple, easy to navigate app shows you up to the minute order information on the go.

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- Upcoming orders for future days
- Request an order for concrete directly from the app
- GPS truck locations with traffic overlay
- Load-level summaries of completed and upcoming orders
- Notifications when a load is on the way to your site
- Records of load status times
- Filtered access - only see the jobs you care about



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# National Ready Mixed Concrete Association



## Certificate of Conformance For Concrete Production Facilities

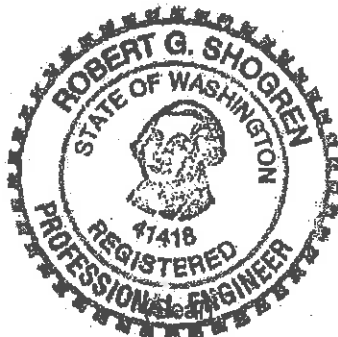
THIS IS TO CERTIFY THAT

*Seattle Plant, Seattle, WA*

*Stoneway Concrete*

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

*Central Mixing with Automatic Batching and Recordings of  
Cementitious Materials, Aggregate, Water, and Chemical Admixtures*



Signature of Licensed Professional Engineer

September 17, 2018

Inspection Date

October 17, 2020

Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

Signature of Company Official

Title of Company Official

**NOTICE:** The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 801273

Certification ID #: 23498

© 1965, 1992, 2001, 2002, 2006, 2007, 2012

National Ready Mixed Concrete Association 900 Spring Street • Silver Spring • Maryland 20910

# National Ready Mixed Concrete Association



## Certificate of Conformance For Concrete Production Facilities

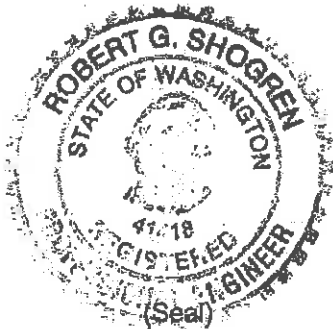
THIS IS TO CERTIFY THAT

***Houser Plant, Renton, WA***

***Stoneway Concrete***

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

***Central Mixing with Automatic Batching and Recordings of  
Cementitious Materials, Aggregate, Water, and Chemical Admixtures***



Signature of Licensed Professional Engineer

***September 17, 2018***

Inspection Date

***October 17, 2020***

Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

Signature of Company Official

Title of Company Official

**NOTICE:** The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 802812

Certification ID #: 23499

© 1965, 1992, 2001, 2002, 2006, 2007, 2012

National Ready Mixed Concrete Association 900 Spring Street • Silver Spring • Maryland 20910

# National Ready Mixed Concrete Association



## Certificate of Conformance For Concrete Production Facilities

THIS IS TO CERTIFY THAT

***Black River Plant, Renton, WA***

***Stoneway Concrete***

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

***Central Mixing with Automatic Batching and Recordings of  
Cementitious Materials, Aggregate, Water, and Chemical Admixtures***



Signature of Licensed Professional Engineer

***November 27, 2017***

Inspection Date

***December 23, 2019***

Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

Signature of Company Official

***Vice President***

Title of Company Official

**NOTICE:** The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 815484

Certification ID #: 22232

© 1965, 1992, 2001, 2002, 2006, 2007, 2012

National Ready Mixed Concrete Association 900 Spring Street • Silver Spring • Maryland 20910

# National Ready Mixed Concrete Association



## Certificate of Conformance for Concrete Facilities

*Seattle Batch Plant, Seattle, Washington*

### Stoneway Concrete

Has been audited and the Environmental Management System has been reviewed by the undersigned accredited Green-Star auditor for conformance with the requirements of the NRMCA Green-Star program



*[Signature]*  
Signature of Accredited NRMCA Green-Star Auditor

**October 30, 2017**

Certification Date

**October 30, 2019**

Certification Expiration Date

This company will maintain these facilities in compliance with the NRMCA Green-Star requirements and will correct promptly any deficiencies which may develop.

*[Signature]*  
Signature of Company Official

*Environmental Manager*  
Title of Company Official

**NOTICE:** The NRMCA Green-Star certification indicates that an Environmental Management System for the concrete facility is in place and that it satisfactorily meets the criteria for a means for continual improvement of environmental best management practices. This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Green-Star program. The reproduction or misuse of this certificate may result in legal action.

Plant ID #: 801273

Certification ID #: P-0473-01

©2008

National Ready Mixed Concrete Association  
900 Spring Street, Silver Spring, MD 20910



# National Ready Mixed Concrete Association



## Certificate of Conformance for Concrete Facilities

*Houser Batch Plant, Renton, Washington*

### Stoneway Concrete

Has been audited and the Environmental Management System has been reviewed by the undersigned accredited Green-Star auditor for conformance with the requirements of the NRMCA Green-Star program



*Kay Chelapess*  
Signature of Accredited NRMCA Green-Star Auditor

**October 30, 2017**

Certification Date

**October 30, 2019**

Certification Expiration Date

This company will maintain these facilities in compliance with the NRMCA Green-Star requirements and will correct promptly any deficiencies which may develop.

*[Signature]*  
Signature of Company Official

*Environmental Manager*  
Title of Company Official

**NOTICE:** The NRMCA Green-Star certification indicates that an Environmental Management System for the concrete facility is in place and that it satisfactorily meets the criteria for a means for continual improvement of environmental best management practices. This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Green-Star program. The reproduction or misuse of this certificate may result in legal action.

Plant ID #: 802812

Certification ID #: P-0474-01

©2008

National Ready Mixed Concrete Association  
900 Spring Street, Silver Spring, MD 20910



# ASH GROVE CEMENT COMPANY



## "WESTERN REGION"

11811 N.E. First Street, Suite A310  
Bellevue, WA 98005  
Sales Office: (425) 688-0110  
Toll Free: 1-800-665-4382  
Fax: (425) 688-0122

January 3, 2019

Greg McKinnon  
Stoneway Concrete  
9216 8<sup>th</sup> Ave. S.  
Seattle, WA 98108

Dear Greg:

This letter is issued to certify that the cement we supply for your use is in conformance with the requirements of ASTM C-150 for Type I, II and III cement. We further certify that our cement meets the requirements of the Washington DOT specification, FAA, Corp. of Engineers, and AASHTO M-85 for Type I and Type II low alkali as well.

Attached you will find our Mill Analysis. We further certify that this cement meets all the requirements of the "Buy American Act."

If you should have any questions regarding the use of our product, please feel free to contact the undersigned.

Sincerely yours,



Dave Burg  
Technical Services Manager

Attachment



### MII Test Report

Plant Seattle Cement Type GU & I-II Low Alkali  
 Production Period January 1, 2019 - February 1, 2019

Date 13-Mar-19  
 Certification No. 2019-01

#### STANDARD REQUIREMENTS ASTM C 150 Tables 1 and 3; CSA Tables 1 and 4

CHEMICAL			
Item	Spec. Limit Type GU	Spec. Limit	Test Result
SiO <sub>2</sub> (%)	A	A	19.6
Al <sub>2</sub> O <sub>3</sub> (%)	A	6.0 max	4.4
Fe <sub>2</sub> O <sub>3</sub> (%)	A	6.0 max	3.5
CaO (%)	A	A	64.3
MgO (%)	5.0 max	6.0 max	0.9
SO <sub>3</sub> (%)	3.0 max	3.0 max	2.8
Ignition loss (%)	3.0 max <sup>F</sup>	3.5 max	2.6
Na <sub>2</sub> O (%)	A	A	0.24
K <sub>2</sub> O (%)	A	A	0.40
Insoluble residue (%)	1.5 max	1.5 max	0.22
CO <sub>2</sub> (%)	A	A	1.6
Limestone (%)	5 max	5.0 max	3.8
CaCO <sub>3</sub> in limestone (%)	A	70 min	97
Inorganic processing addition (%) (Baghouse Dust)	A	5.0 max	0.6
Potential phase composition (%) <sup>C</sup>			
C3S	A	A	62
C2S	A	A	9
C3A	A	8 max	6
C4AF	A	A	11
C4AF+2(C3A)	A	A	22
C3S+4.75(C3A)	A	A	88

PHYSICAL			
Item	Spec. Limit Type GU	Spec. Limit	Test Result
Air content of mortar (volume %)	A	12 max	7
Blaine fineness (m <sup>2</sup> /kg)	A	260 min	366
% Passing 325 mesh	72 min <sup>D</sup>	A	95.9
Autoclave expansion (%)	1.0 max	0.80 max	0.06
Compressive strength MPa (PSI)	min:	min:	
1 Day	A	A	14.8 (2140)
3 Days	14.5	12.0	26.3 (3810)
7 Days	20.0	19.0	34.1 (4940)
28 Days	26.5	A	44.1 (6400) <sup>E</sup>
Time of setting (minutes)			
Vicat Initial not less than	45	45	108
Final not more than	375	375	208
Heat of hydration (cal/g)			
7 Days	A	A	83 <sup>B</sup>

#### OPTIONAL REQUIREMENTS ASTM C 150 Tables 2 and 4

CHEMICAL			
Item	Spec. Limit Type GU	Spec. Limit	Test Result
Equivalent alkalis (%)	A	0.60 max	0.50

PHYSICAL			
Item	Spec. Limit Type GU	Spec. Limit	Test Result
False set (%)	A	50 min	90

<sup>A</sup>Not applicable.

<sup>B</sup>Test result represents most recent value and is provided for information only.

<sup>C</sup>Adjusted per A1.6.

<sup>D</sup>Fineness: 45µm sieve, maximum % retained, 28.

<sup>E</sup>The reported 28 Days are for the previous production period.

<sup>F</sup>An ignition loss of 3.5% maximum is allowed provided the cement at 550 ± 25 °C, show a loss in mass of no more than 3.0%.

#### ADDITIONAL DATA

Inorganic Processing Addition Data	
Type	Baghouse Dust
Amount (%)	0.6
SiO <sub>2</sub> (%)	13.5
Al <sub>2</sub> O <sub>3</sub> (%)	6.0
Fe <sub>2</sub> O <sub>3</sub> (%)	1.3
CaO (%)	42.1
SO <sub>3</sub> (%)	0.7
Base Cement Phase Composition	
C3S (%)	64
C2S (%)	10
C3A (%)	6
C4AF (%)	11

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of the ASTM C150/C150M-18 specification and the CSA A3001-13 Type GU specification.

Signature: \_\_\_\_\_

Edward C. Rafacz

Title: \_\_\_\_\_

Chief Chemist



Cement

January 3, 2019

Dear Sirs,

RE: Lafarge Cements Certificate of Compliance (2019)

This is to certify that the Lafarge portland cements produced at Richmond BC and Exshaw Alberta comply with ASTM C-150 and AASHTO M-85 for Types I, II, III, V and ASTM C-595 and AASHTO M-240 for Type IL(X). MaxCem produced in Seattle, WA complies with ASTM C-595 and AASHTO M-240 Type IT(L15)(S30). The portland cements produced at the Lafarge Richmond and Exshaw plants contain 5% pre-consumer bi-products.

The NewCem (ground granulated blast furnace slag) meets ASTM C-989 and AASTHO M-302 specifications. Furthermore, Centralia and Sundance fly ash and Kamloops Pumice meet the specifications of ASTM C-618 and AASHTO M-295.

NewCem Slag, Sundance and Centralia fly ash are 100% pre-consumer bi-products.

The total chloride content of Lafarge products are <0.03% by mass.

Should you have any questions, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads 'Robt S. Shogren'.

Rob Shogren, PE, Ph.D.  
Technical Service Engineer  
Lafarge North America  
(206)-923-9953

WESTERN REGION  
5400 West Marginal Way SW, Seattle, Washington 98106-1517  
Office: 206.923.0098 or 800.477.0100 Fax: 206.923.0388

# **LAFARGE** Cement Test Report **CEMENT**

Mill Test Report Number: SEA\_NEWCEM\_MARCH19

YEAR: 2019

MONTH: FEBRUARY

PLANT: Seattle

CEMENT TYPE: NewCem Grade 100

## Reference Cement

Fineness by Air Permeability (m <sup>2</sup> /kg; ASTM C204)	395
Fineness by 45 µm (No. 325) Sieve (% retain; ASTM C430)	2.52
Compressive Strength (ASTM C109/C109 M)	psi
7-day	5,205
28-day	6,230
	<u>Actual</u> <u>Max Limit</u>
Total Alkalies (Na <sub>2</sub> O + 0.658 K <sub>2</sub> O) (%, ASTM C114)	0.83 0.9

## Slag

CHEMICAL ANALYSIS	Percent
Silica Dioxide (SiO <sub>2</sub> ; ASTM C114)	30.2
Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> ; ASTM C114)	1.2
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> ; ASTM C114)	11.3
Calcium Oxide (CaO; ASTM C114)	42.9
Sulfur Trioxide (SO <sub>3</sub> ; ASTM C114)	4.6
Magnesium Oxide (MgO; ASTM C114)	4.8
Potassium Oxide (K <sub>2</sub> O; ASTM C114)	0.44
Titanium Oxide (TiO <sub>2</sub> ; ASTM C114)	0.48
Loss on Ignition (L.O.I.; ASTM C114)	3.3
Total Alkalies	0.52
Inorganic Process Addition	5

## Slag

Fineness by Air Permeability (m <sup>2</sup> /kg; ASTM C204)	518		
Fineness by 45 µm (No. 325) Sieve (% retain; ASTM C430)	97.0		
Compressive Strength (ASTM C109/C109 M)	<u>psi [Mpa]</u>	<u>SAI</u>	<u>SAI Limit</u> <u>Min</u>
28-day Previous Month	6390 [44.0]	103	95
Specific Gravity (Mg/m <sup>3</sup> ; ASTM C188)	2.87		
	<u>Actual</u>	<u>Max Limit</u>	
Air Content of Mortar (%, ASTM C185)	3.2	12	
Sulfide Sulfur (% S, ASTM C114)	0.66	2.5	
Sulfate Ion (% as SO <sub>3</sub> , ASTM C114)	3.0	4	
Autoclave expansion (%, CSA A3004-B5)	-0.010	0.5	

The ground granulated blast furnace slag complies with the current specification of the chemical physical requirement of ASTM C-989, AASHTO M-302 for grade 100 Ground Granulated Blast Furnace Slag (GGBFS) and and CSA A3001 Slag.

Slag source is JFE Mineral Company in Kurashiki City, Japan. NewCem is ground and manufactured in Seattle, WA.

Certified by:



Daniel Waldron  
Quality Control Laboratory Supervisor

March 15, 2019



Certified to  
NSF/ANSI 61

## Cement Mill Test Report

Month of Issue: FEBRUARY 2019

Plant: Richmond, British Columbia  
Product: Portland Cement Type IL(15)  
Mill Test Report #: R-TIL-19-02  
Manufactured: JANUARY 2019

### ASTM C595 - 17 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray (C 114)			Air content of mortar (%) (C 185)	12 max	5.3
SiO <sub>2</sub> (%)	---	18.6	Blaine Fineness (m <sup>2</sup> /kg) (C 204)	---	463
Al <sub>2</sub> O <sub>3</sub> (%)	---	4.4	Passing 325 (%) (C 430)	---	99.2
Fe <sub>2</sub> O <sub>3</sub> (%)	---	3.2	Autoclave expansion (%) (C 161)	[-0.2 - 0.8]	-0.02
CaO (%)	---	63.2	Compressive strength (Mpa [PSI]) (C 109)		
MgO (%)	---	0.8	3 days	13.0 [1890] min	29.5 4270
SO <sub>3</sub> (%)	3.0 max <sup>a</sup>	2.7	7 days	20.0 [2900] min	35.6 5160
Loss on Ignition @ 950 (%)	10.0 max	5.7	28 days (Reflects previous month's data)	25.0 [3620] min	44.6 6470
NaEq (Alkali) (%)	---	0.46	Time of setting (minutes)		
Insoluble residue (%)	---	0.24	Vicat Initial (C 191)	45-420	91
Adjusted Potential Phase Composition <sup>***</sup>			Mortar Bar Expansion (C 1038) <sup>*</sup>		
C3S (%)	---	48	14 days, % max	0.020 max	0.001
C2S (%)	---	17			
C3A (%)	---	6			
C4AF (%)	---	10			
Sulphate Resistance C1012 (Q2/2018)		0.070			

<sup>a</sup> May exceed 3.0% SO<sub>3</sub> maximum based on our C 1038 results of <0.02% expansion at 14 days.

C1038 tested Q3-18

<sup>\*\*\*</sup> Corrected by using ASTM Calculation for Limestone Cement

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of:  
ASTM C 595-17 & AASHTO M 240-17 STANDARD SPECIFICATIONS FOR TYPE IL(15) CEMENT

Cement complies with NSF 61

Western BU - Richmond  
7611 No 9 Rd Richmond, BC  
604 244 4300

Questions or enquiries can be directed to Rob Shogren

Rob Shogren, PhD  
Lafarge - Technical Director  
5400 W Marginal Way SW, Seattle WA  
P +1 206 923 9953  
E Rob.Shogren@lafargeholcim.com

Certified By:

Harold Ptachyk B.Sc., PChem  
Quality Manager  
2/12/2019

Washington State  
Department of Transportation

## WSDOT MATERIALS LAB

09/26/2017

## Aggregate Source Approval Report

Owner: Glacier Northwest

Aggregate Source: PS-B-335

Lessee:

Known as: DuPont Pit

Located in: A part of Section 22 and 23 Section 23 T19N R1E

County: Pierce

## Remarks:

**Mineral Agg. and Surfacing:**

Test Date: 02/19/2015

Expiration Date: 02/19/2020

Absorption: 0.88

Apparent Sp. G.: 2.754

Bulk Sp. G. (SSD): 2.712

Bulk Sp. G.: 2.689

Deg: 75

LA: 13

## Remarks:

Currently approved as a source of aggregate for:

ATB

Ballast

BST Crushed Cover Stone

BST Crushed Screenings

Crushed Surfacing Base Course

Crushed Surfacing Key Stone

Crushed Surfacing Top Course

Gravel Backfill for Foundation Class A for  
Foundat

HMA Other Courses

HMA Wearing Course

Maintenance Rock

Permeable Ballast

Acceptance tests need to be performed as necessary.

**Portland Cement Concrete Aggregates:**

Test Date: 02/08/2016

Expiration Date: 02/08/2021

ASR - 14 Day : 0.56

ASR - One Year: 0.03

CCA Absorption: 1.09

CCA Sp.G: 2.695

Deg: 77

FCA Absorption: 1.58

FCA Organics: 1

FCA Sp. G: 2.656

LA: 10

Mortar Strength:

Petrographic Analysis:

Remarks: 1-Year ASR Results Expire 02/01/2022

Currently approved for:

Coarse Concrete Aggregates

Fine Concrete Aggregates

Acceptance tests need to be performed as necessary NOT APPROVED AS A SOURCE OF AGGREGATE FOR:

**Riprap, Quarry Spalls, Rock for Rock Wall, Erosion and Scour Protection:**

Test Date:

Expiration Date:

Absorption:

Apparent Sp. G.:

Bulk Sp. G. (SSD):

Bulk Sp. G.:

Deg:

LA:

## Remarks:

NOT Approved for:

Quarry Spalls

Riprap

Rock for Erosion and Scour Protection

Rock for Rock Walls

Stone 9-27.3(6)

---

<b>Streambed Aggregates:</b>	Test Date: 02/19/2015	Expiration Date: 02/19/2020	
Absorption: 0.88	Apparent Sp. G.: 2.754	Bulk Sp. G. (SSD): 2.715	Bulk Sp. G.: 2.689
Deg: 75	LA: 13		

**Remarks:**

Currently Approved for:

Streambed Aggregate

---

<b>Gravel Borrow for Structural Earth Walls:</b>	Test Date:	Expiration Date:
Bulk Sp. G. (SSD):	Deg:	LA:

**Remarks:**

NOT Approved for:

Gravel Borrow for Str Earth Walls

**ALL OTHER PIT RUN MATERIALS:**

Project Engineer may request preliminary samples but Aggregate Source Approval is not required.

**AGGREGATE MATERIALS NOT REQUIRING ASA APPROVAL :**

Aggregate for Gravel Base 9-03.10  
Gravel Backfill for Foundation Class B 9-03.12(1)B  
Gravel Backfill for Walls 9-03.12(2)  
Gravel Backfill for Pipe Zone Bedding 9-03.12(3)  
Gravel Backfill for Drains 9-03.12(4)  
Gravel Backfill for Drywells 9-03.12(5)  
Backfill for Sand Drains 9-03.13  
Sand Drainage Blanket 9-03.13(1)  
Gravel Borrow 9-03.14(1)  
Select Borrow 9-03.14(2)  
Common Borrow 9-03.14(3)  
Native Material for Trench Backfill 9-03.15  
Foundation Material Class A and B 9-03.17  
Foundation Material Class C 9-03.18  
Bank Run Gravel for Trench Backfill 9-03.19



## WSDOT MATERIALS LAB

04/23/2018

## Aggregate Source Approval Report

Owner: Quality Aggregates LLC

Aggregate Source: PS-A-458

Lessee:

Known as: Lake Francis Pit

Located in: NW 1/4 SE 1/4 Section 33 T23N R6E

County: King

## Remarks:

**Mineral Agg. and Surfacing:**

Test Date: 08/11/2016

Expiration Date: 08/11/2021

Absorption: 0.97

Apparent Sp. G.: 2.758

Bulk Sp. G. (SSD): 2.712

Bulk Sp. G.: 2.686

Deg: 76

LA: 17

## Remarks:

Currently approved as a source of aggregate for:

ATB

Ballast

BST Crushed Cover Stone

BST Crushed Screenings

Crushed Surfacing Base Course

Crushed Surfacing Key Stone

Crushed Surfacing Top Course

Gravel Backfill for Foundation Class A

HMA Other Courses

HMA Wearing Course

Maintenance Rock

Permeable Ballast

Acceptance tests need to be performed as necessary.

**Portland Cement Concrete Aggregates:**

Test Date: 08/25/2016

Expiration Date: 08/25/2021

ASR - 14 Day : 0.46

ASR - One Year: 0.03

CCA Absorption: 0.69

CCA Sp.G: 2.734

Deg: 77

FCA Absorption: 1.65

FCA Organics: 2

FCA Sp. G: 2.669

LA: 14

Remarks: 1-Year ASR results expire 04/19/2023

Currently approved for:

Coarse Concrete Aggregates

Fine Concrete Aggregates

Acceptance tests need to be performed as necessary

**Riprap, Quarry Spalls, Rock for Rock Wall, Erosion and Scour Protection:**

Test Date:

Expiration Date:

Absorption:

Apparent Sp. G.:

Bulk Sp. G. (SSD):

Bulk Sp. G.:

Deg:

LA:

## Remarks:

NOT Approved for:

Quarry Spalls

Riprap

Rock for Erosion and Scour Protection

Rock for Rock Walls

Stone 9-27.3(6)

**Streambed Aggregates:** Test Date: 08/25/2016 Expiration Date: 08/25/2021  
Absorption: 0.69 Apparent Sp. G.: 2.767 Bulk Sp. G. (SSD): 2.734 Bulk Sp. G.: 2.715  
Deg: 77 LA: 14

**Remarks:**

Currently Approved for:

Streambed Aggregate

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**Gravel Borrow for Structural Earth Walls:** Test Date: 08/25/2016 Expiration Date: 08/25/2021  
Bulk Sp. G. (SSD): 2.734 Deg: 77 LA: 14

**Remarks:** Contact RME to determine if Resistivity, pH, Chlorides, and Sulfates testing is required

Currently Approved for:

Gravel Borrow for Str Earth Walls

Gravel Borrow for Str Earth Walls

**ALL OTHER PIT RUN MATERIALS:**

Project Engineer may request preliminary samples but Aggregate Source Approval is not required.

**AGGREGATE MATERIALS NOT REQUIRING ASA APPROVAL :**

Aggregate for Gravel Base 9-03.10  
Gravel Backfill for Foundation Class B 9-03.12(1)B  
Gravel Backfill for Walls 9-03.12(2)  
Gravel Backfill for Pipe Zone Bedding 9-03.12(3)  
Gravel Backfill for Drains 9-03.12(4)  
Gravel Backfill for Drywells 9-03.12(5)  
Backfill for Sand Drains 9-03.13  
Sand Drainage Blanket 9-03.13(1)  
Gravel Borrow 9-03.14(1)  
Select Borrow 9-03.14(2)  
Common Borrow 9-03.14(3)  
Native Material for Trench Backfill 9-03.15  
Foundation Material Class A and B 9-03.17  
Foundation Material Class C 9-03.18  
Bank Run Gravel for Trench Backfill 9-03.19

## P R O D U C T I N F O R M A T I O N

# Daravair® 1000

Air-Entraining Admixture ASTM C 260, AASHTO M 154

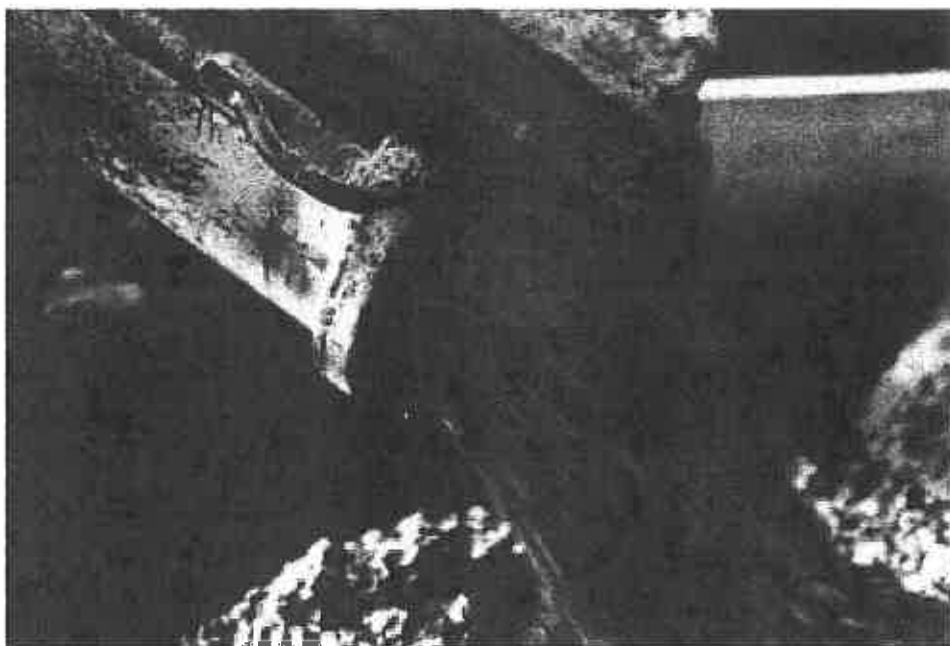
## Description

Daravair® 1000 is a liquid air-entraining admixture that provides freeze-thaw resistance, yield control, and finishability performance across the full range of concrete mix designs. Daravair 1000 is a clean, light-orange product designed to generate specification-quality air systems. Based on a high-grade saponified rosin formulation, Daravair 1000 is chemically similar to vinsol-based products, but with increased purity and supply dependability.

## Uses

Daravair 1000 air-entraining admixture may be used wherever the purposeful entrainment of air is required by concrete specifications. Formulated to perform across the entire spectrum of production mixes, Daravair 1000 generates quality, freeze-thaw resistant air systems in concrete conditions that include the following:

- Low Slump
- Paving
- Central Mix
- Extruded Slip Form
- Mixes Containing Hot Water and Accelerators
- Precast



- High Cement Factor
- Fly Ash and Slag
- Superplasticizers
- Manufactured Sands

## Air-Entraining Action

Air is incorporated into the concrete by the mechanics of mixing and stabilized into millions of discrete semi-microscopic bubbles in the presence of a specifically designed air-entraining admixture such as Daravair 1000. These air bubbles act much like flexible ball bearings increasing the mobility, or plasticity and workability of

the concrete. This can permit a reduction in mixing water with no loss of slump. Placeability is improved. Bleeding, plastic shrinkage and segregation are minimized.

Through the purposeful entrainment of air, Daravair 1000 markedly increases the durability of concrete to severe exposures particularly to freezing and thawing. It has also demonstrated a remarkable ability to impart resistance to the action of frost and deicing salts as well as sulfate, sea and alkaline waters.

### Compatibility with Other Admixtures

Daravair 1000 air-entraining admixture is fully effective and compatible in concrete with other admixtures. EACH ADMIXTURE, HOWEVER, SHOULD BE ADDED TO THE CONCRETE SEPARATELY.

### Addition Rate

There is no standard addition rate for Daravair 1000 air-entraining admixture. The amount to be used will depend upon the amount of air required for job conditions, usually in the range of 4 to 8%. Typical factors which might influence the amount of air-entraining admixture required are, temperature, cement, sand gradation, and the use of extra fine materials such as fly ash and microsilica. Typical Daravair 1000 addition rates range from 50 to 200 mL/100 kg ( $\frac{3}{4}$  to 3 fl oz/100 lbs) of cement.

The air-entraining capacity of Daravair 1000 is usually increased when other concrete admixtures are contained in the

concrete, particularly water-reducing admixtures and water-reducing retarders. This may allow up to a two-thirds reduction in the amount of Daravair 1000 required.

### Mix Adjustment

Entrained air will increase the volume of the concrete making it necessary to adjust the mix proportions to maintain the cement factor and yield. This may be accomplished by a reduction in water requirement and aggregate content.

### Dispensing Equipment

A complete line of accurate automatic dispensing equipment is available. These dispensers can be located to discharge into the water line, the mixer, or on the sand.

### Packaging

Daravair 1000 air-entraining admixture is available in bulk, delivered by metered tank trucks and in 210 L (55 gal) drums. Daravair 1000 contains no flam-

mable ingredients. Daravair 1000 will freeze at about  $-1^{\circ}\text{C}$  ( $30^{\circ}\text{F}$ ) but its air-entraining properties are completely restored by thawing and thorough mechanical agitation.

### Architects' Specifications

Concrete shall be air entrained concrete, containing 4 to 8% entrained air. The air contents in the concrete shall be determined by the pressure method (ASTM Designation C 231) or volumetric method (ASTM Designation C 173). The air-entraining admixture shall be a completely neutralized rosin solution, such as Daravair 1000, as manufactured by Grace Construction Products, or equal, and comply with standard specification for air-entraining admixtures (ASTM Designation C 260). The air-entraining admixture shall be added at the concrete mixer or batching plant at approximately 50 to 200 mL/100 kg ( $\frac{3}{4}$  to 3 fl oz/100 lbs) of cement, or in such quantities as to give the specified air contents.

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**GRACE**  
Construction Products

## P R O D U C T I N F O R M A T I O N

# Recover®

Hydration Stabilizer ASTM C 494, Type D

## Description

Recover® is a ready-to-use aqueous solution of chemical compounds specifically designed to stabilize the hydration of portland cement concretes. The ingredients are factory pre-mixed in exact proportions under strict quality control to provide uniform results. One Liter weighs approximately 1.15 kg (one gal weighs approximately 9.6 lbs).



Recover is approved by ASTM C 494 as a Type D retarder, and favorably evaluated by ICBO (International Conference of Building Officials, Report # 4886) as a hydration stabilizer.

## Uses

Recover is used to stabilize mixer wash water and returned or leftover concrete for extended periods, allowing for reuse of the materials when required. It is also used where controlled set of concrete is needed.



## Wash Water

For wash water applications, Recover is used to eliminate the need to discharge wash water from the mixer. This allows the wash water to be used as mix water in the next batch of concrete produced, and prevents the residual plastic concrete from hardening. Stabilization of up to 96 hours is possible depending on dosage rate.

## Returned Concrete

For returned or leftover concrete, Recover is used to prevent plastic concrete from reaching initial set. This allows the concrete to be stored in a plastic state and then reused when required. Reuse may require the addition of freshly batched concrete and/or an accelerator such as Daracel® or PolarSet®. Stabilization of concrete for up to 96 hours is possible depending on dosage rate. Use prevents the waste of unused concrete.

### Set Time Control

Recover is also used in situations where a controlled set time extension is required. Examples include: extended hauls, large continuous pours or pre-batching of concrete for later use.

### How Recover Works

Recover stabilizes the hydration process of portland cement preventing it from reaching initial set. This stabilization is not permanent and is controlled by dosage rate. For wash water, the Recover treated water is mixed or sprayed in a specific manner to thoroughly coat the interior of the mixer. The water is used as mix water in the next batch of concrete produced, which then scours the unhardened material from the interior of the mixer. Stabilization of returned or leftover concrete with Recover maintains the plasticity of the concrete for the desired storage duration. This stabilized concrete then resumes normal hydration when the Recover dosage effects subside, or when it is activated by the addition of fresh concrete and/or an accelerator. The result is concrete with normal plastic and hardened properties.

### Compatibility

Recover is compatible in wash water and concrete with all ASTM C 494 approved admixtures and ASTM C 260 approved air entraining admixtures. It is necessary to make a preliminary evaluation of the desired properties and to make product adjustments accordingly.

### Addition Rates

Addition rates of Recover for wash water range from 180 to 3800 mL (6 to 128 fl oz) per treatment. The amount used will depend on the specific materials involved, mixer type, and stabilization period. Addition rates for returned or leftover concrete will range from 195 to 8350 mL/100 kg (3 to 128 fl oz/100 lbs) of cement. The amount used will depend on the specific materials involved, concrete age, temperature conditions, and stabilization period. For set time extension, applications, dosages range from 130 to 3260 mL/100 kg (2 to 50 oz/100 lbs) of cement. Proper dosage rate selection can only be achieved through pretesting. Consult your local Grace admixture representative.

### Dispensing Equipment

A complete line of Grace dispensing equipment is available for Recover. This includes the Reach 360™ System which uses an innovative spray wand technology to simplify wash water procedures.

### Packaging

Recover is available in bulk, delivered by metered tank trucks and 208 L (55 gal) drums. It contains no flammable ingredients. Recover will freeze, but will return to full effectiveness after thawing and thorough mechanical agitation.

U.S. Patent Nos. 4964917; 5203919; 5427617 and corresponding patents outside of the United States.

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Recover, Daracel and PolarSet are registered trademarks and Reach 360 is a trademark of W.R. Grace & Co.-Conn.

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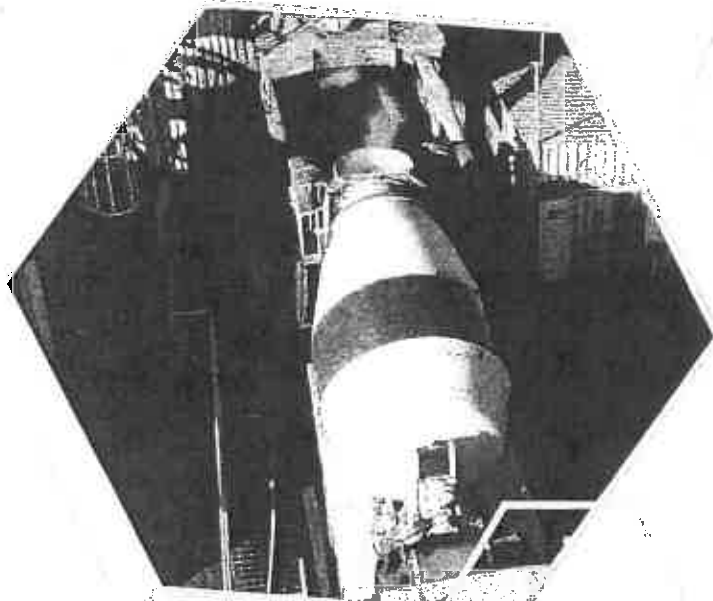
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**GRACE**  
Construction Products

# NATcrete

*Nitrogen Applied Technology: THE ADMIXTURE FOR COOLING*



## ***KEEP IT SIMPLE.***

Keep the same mix design year round with the NAT.

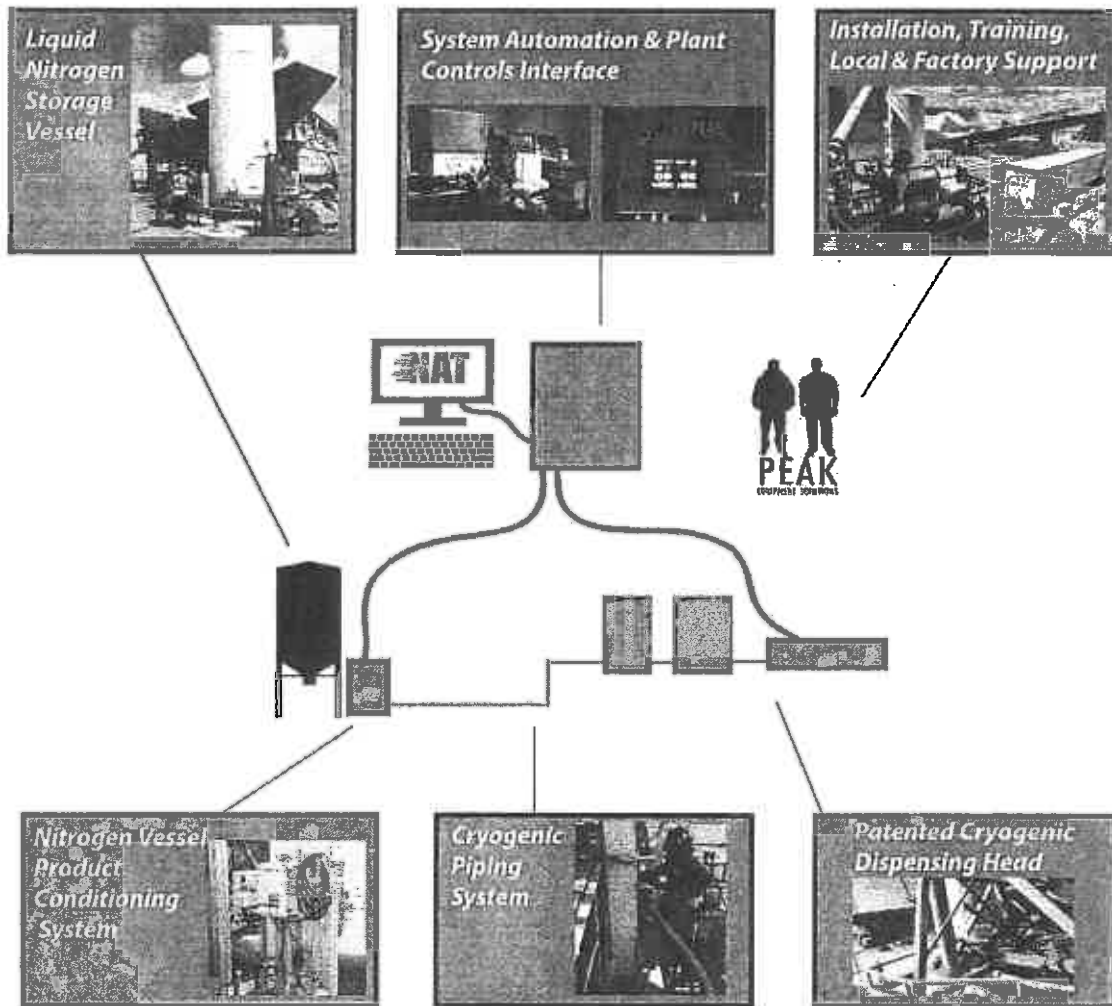
## ***STAY SAFE.***

Computer controlled for easy monitoring.

## ***SAVE MONEY.***

NAT customers have seen their cooling prices reduced by 30-50%.

## Nitrogen Applied Technology: THE ADMIXTURE FOR COOLING



### Advantages of Nitrogen:

- Unlimited Cooling
- No effect on mix
- Inexpensive material
- Safe! (78% of the atmosphere is nitrogen)



### SEE RESULTS

Cooling with ice offers inconsistent results. With the NAT, cooling of the aggregate mix occurs before the product enters the truck ensuring that the mix is cooled throughout. With in-house design and software, the NAT maximizes the ability of batching machinery.

### GET STARTED

The NAT is delivered to your site with the tank, plumbing and dispensing head included. The turnkey system seamlessly installs and operates within the current batch plant. All that's left to do is turn it on and start cooling concrete.

**STONEMAN CONCRETE**

9125 10th Ave S,  
Seattle, WA 98108  
(206) 762-2566

**NATcrete**

1 Industrial Park  
Johnstown, CO 80534  
info@peak-innovations.com  
970-587-7863  
www.peak-innovations.com

**1100-CLEAR****Resin-Based, Water-Based Concrete Curing Compound****DESCRIPTION**

The 1100-CLEAR series of water-based concrete curing compounds is formulated from hydrocarbon resins and may be used on interior, exterior, vertical, and horizontal concrete surfaces. Once applied, 1100-CLEAR forms a premium-grade membrane that retains an optimum amount of water in freshly placed concrete for complete hydration of the cement. **NOTE:** After approximately four weeks, the membrane begins to chemically break down. The membrane will eventually dissipate from the surface. This process usually takes another 3 - 5 weeks under normal traffic, exposure to UV, and weathering conditions.

**USES**

The 1100-CLEAR series has been used on both interior and exterior applications where paint, resilient tile or resilient flooring may be applied later. Because of the wide variety of coatings, paints, adhesives, and toppings available, contact the manufacturer of the flooring system or subsequent coating or topping for application approval over resin-based curing compounds. A small test application is always recommended.

**SPECIFICATIONS**

- U.S. EPA Architectural Coatings Rule: 350 g/L maximum VOC for concrete curing compounds
- SCAQMD Rule 1113: 100 g/L maximum VOC for concrete curing compounds and waterproofing concrete/masonry sealers
- Ozone Transport Commission (OTC): 350 g/L maximum VOC for Concrete Curing Compounds
- ASTM C 309, Type 1, Classes A & B (Type 1-D also available)
- AASHTO M 148, Type 1, Classes A & B (Type 1-D also available)

**FEATURES/BENEFITS**

- When properly applied, 1100-CLEAR produces a premium-grade film, which optimizes water retention.
- Furnished as a ready-to-use, true water-based compound.
- Produces hard, dense concrete ... minimizes hair checking, thermal cracking, dusting, and other defects.
- Offers a compressive strength significantly greater than improperly or uncured concrete.
- Increases tensile strength for greater resistance to cracking and surface crazing.
- Improves resistance to abrasion and the corrosive actions of salts and chemicals.
- Minimizes excessive shrinkage.
- Can be applied quickly and easily with conventional commercial spray equipment.
- Formulations are also available with red fugitive dye added.
- VOC compliant ... VOC content is <100 g/L.

**PACKAGING**

5 Gallon (18.93 L) Pails  
55 Gallon (208.20 L) Drums

**TECHNICAL DATA**

**Drying Time:** Typically dries in 1-2 hours, depending on jobsite conditions (temperature, wind, etc.) Restrict foot traffic for at least four hours; 12 hours is preferable.  
**Flash Point:** >210° F (99° C).

*CONTINUED ON REVERSE SIDE...*

### LEED INFORMATION

May help contribute to LEED credits:

- EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings
- MR Credit 5.1: Regional Materials: 10% Extracted, Processed & Manufactured Regionally
- MR Credit 5.2: Regional Materials: 20% Extracted, Processed & Manufactured Regionally

### APPLICATION

**Preparation ...** Application equipment must be clean and free of all previously used materials.

**Mixing ...** For optimum performance, gentle mixing or agitation is recommended. **CAUTION: TO AVOID FOAMING, DO NOT MIX EXCESSIVELY. DO NOT THIN.**

**Application Method ...** Apply in a uniform film to horizontal surfaces as soon as the surface water disappears and the surface will not be marred by walking workmen. On vertical surfaces, apply promptly after the forms are removed. 1100-CLEAR may be applied with a typical commercial hand or power sprayer. Use a Chapin 5797 or equivalent spray nozzle that produces a flow of 1/2 gal. (1.89 L) per minute under 40 psi (.276 MPa) of pressure.

**Coverage ...** Approximately 200 ft.<sup>2</sup>/gal. (4.91 m<sup>2</sup>/L). Coverage rate may vary depending on conditions (temperature, wind, etc.) at the jobsite, as well as the porosity and condition of the concrete.

**Cleanup ...** Prior to drying, cleanup can be accomplished with soap and water. Once dried, use mineral spirits or other suitable petroleum solvent.



### LIMITED WARRANTY

"W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order." Read complete warranty. Copy furnished upon request.

### Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

### PRECAUTIONS

**KEEP FROM FREEZING.** Do not apply if air and/or concrete temperature is less than 40° F (4° C). Improper or over-application may increase the amount of time necessary for the film to dissipate from the surface. **SURFACE MAY DISCOLOR AND/OR YELLOW DUE TO OVER-APPLICATION. DO NOT MIX OR DILUTE WITH ANY OTHER PRODUCTS OR LIQUIDS.** Do not apply paint, resilient flooring or any other subsequent coatings or toppings without first checking the specifications and securing approval from the manufacturer of the product being applied over 1100-CLEAR. A small test application is always recommended. If removal of 1100-CLEAR is necessary, use ULTRITE® DEGREASER from W. R. MEADOWS.

### HEALTH AND SAFETY

Direct contact may result in mild irritation. Read and follow all application, precaution, label, and health and safety information prior to use. Refer to Material Safety Data Sheet for complete health and safety information.

### SHELF LIFE (TYPICAL)

One year in original, unopened container.

**FOR FURTHER LEED INFORMATION, MSDS, AND MOST CURRENT TECHNICAL DATA SHEET, VISIT [WWW.WRMEADOWS.COM](http://WWW.WRMEADOWS.COM).**